1. What is the **best** way to describe the domain of the scenario below?

   Veronica needs to prepare 170 lbs of blended coffee beans to sell for $4.71 per pound. She has a high-quality bean that sells for $6.00 a pound and a low-quality been that sells for $3.25 a pound.

   A. Subset of the Integers

   B. Proper subset of the Real numbers

   C. There is no restricted domain in this scenario

   D. Subset of the Rational numbers

   E. Subset of the Natural numbers

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2. A town has an initial population of 100000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	100060	100120	100240	100480	100960	101920	103840	107680	115

   A. Logarithmic

   B. Linear

   C. Non-Linear Power

   D. Exponential

   E. None of the above

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3. For the information provided below, construct a linear model that describes her total income, I, as a function of the number of months, x she is at UF.

   Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $800 educational expense each year. Before college, Aubrey saved up $10000. She knows she will need to pay $700 in rent a month, $80 for food a week, and $56 in other weekly expenses.

A. $I(x) = 836x$

B. $I(x) = 1244x$

C. $I(x) = 836$

D. $I(x) = 1244$

E. None of the above.

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4. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the low-quality coffee beans h.

Veronica needs to prepare 130 of blended coffee beans selling for $3.49 per pound. She has a high-quality bean that sells for $4.66 a pound and a low-quality bean that sells for $2.94 a pound.

A. $C(h) = 3.80h$

B. $C(h) = 2.94h$

C. $C(h) = -1.72h + 605.80$

D. $C(h) = 1.72h + 382.20$

E. None of the above.

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5. What is the **best** way to describe the domain of the scenario below?

Fred is a store manager at Publix. The store normally orders two pallets of water bottles a week and sells 1000 bottles per day. However, a hurricane is coming and Fred expects water bottle sales to increase tenfold for three days, then decrease by half of normal sales for four days. How many more pallets of water bottles should Fred order the week before the hurricane?

A. Proper subset of the Real numbers

B. There is no restricted domain in this scenario

C. Subset of the Integers

D. Subset of the Rational numbers

E. Subset of the Natural numbers

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6. A town has an initial population of 50000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	50060	50120	50240	50480	50960	51920	53840	57680	65360

A. Linear

B. Non-Linear Power

C. Exponential

D. Logarithmic

E. None of the above

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7. For the information provided below, construct a linear model that describes the total distance of the path, D, in terms of the time spent on a particular path *if we know that the time spent on each path was equal.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 5 mph, 10 mph when traveling down a hill, and 7 mph when traveling along a flat portion.

A. $22t$

B. $0.443t$

C. $350t$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

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8. For the information below, construct a linear model that describes the total time T spent on the path in terms of the distance of a particular part of the path *if we know that the time spent on each path was equal.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 4 mph, 9 mph when traveling down a hill, and 5 mph when traveling along a flat portion.

A. $18.000D$

B. $180.000D$

C. $0.561D$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

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9. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the high-quality coffee beans h.

Veronica needs to prepare 180 of blended coffee beans selling for $4.11 per pound. She has a high-quality bean that sells for $4.63 a pound and a low-quality bean that sells for $3.36 a pound.

A. $C(h) = 4.63h$

B. $C(h) = -1.27h + 833.40$

C. $C(h) = 4.00h$

D. $C(h) = 1.27h + 604.80$

E. None of the above.

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10. For the information provided below, construct a linear model that describes her total costs, C, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will

receive Bright Futures, which covers her tuition plus a $800 educational expense each year. Before college, Aubrey saved up $11000. She knows she will need to pay $900 in rent a month, $80 for food a week, and $56 in other weekly expenses.

A. $C(x) = 1444x$

B. $C(x) = 1036$

C. $C(x) = 1036x$

D. $C(x) = 1444$

E. None of the above.

---

11. What is the **best** way to describe the domain of the scenario below?

Hannah plans to pay off a no-interest loan from her parents. Her loan balance is $1,000. She plans to pay $35 at the end of every week until her balance is $0. How many weeks will it be until she has paid off her loan?

A. Subset of the Natural numbers

B. Proper subset of the Real numbers

C. There is no restricted domain in this scenario

D. Subset of the Rational numbers

E. Subset of the Integers

---

12. A town has an initial population of 70000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	70027	70057	70095	70125	70147	70177	70215	70245	70267

A. Non-Linear Power

B. Exponential

C. Linear

D. Logarithmic

E. None of the above

---

13. For the information provided below, construct a linear model that describes her total costs, C, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $400 educational expense each year. Before college, Aubrey saved up $10000. She knows she will need to pay $700 in rent a month, $40 for food a week, and $32 in other weekly expenses.

A. $C(x) = 10400$

B. $C(x) = 772x$

C. $C(x) = 772$

D. $C(x) = 10400x$

E. None of the above.

---

14. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the low-quality coffee beans h.

Veronica needs to prepare 220 of blended coffee beans selling for $4.85 per pound. She has a high-quality bean that sells for $5.58 a pound and a low-quality bean that sells for $4.16 a pound.

A. $C(h) = -1.42h + 1227.60$

B. $C(h) = 4.16h$

C. $C(h) = 4.87h$

D. $C(h) = 1.42h + 915.20$

E. None of the above.

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15. What is the **best** way to describe the domain of the scenario below?

Fred is a store manager at Publix. The store normally orders two pallets of water bottles a week and sells 1000 bottles per day. However, a hurricane is coming and Fred expects water bottle sales to increase tenfold for three days, then decrease by half of normal sales for four days. How many more pallets of water bottles should Fred order the week before the hurricane?

A. Subset of the Natural numbers

B. Subset of the Rational numbers

C. Proper subset of the Real numbers

D. There is no restricted domain in this scenario

E. Subset of the Integers

---

16. A town has an initial population of 40000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	40055	40097	40147	40205	40255	40297	40347	40405	40455

A. Linear

B. Non-Linear Power

C. Exponential

D. Logarithmic

E. None of the above

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17. For the information below, construct a linear model that describes the total time T spent on the path in terms of the distance of a particular part of the path *if we know that all parts of the path are equal length.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their

speed traveling up a hill is 4 mph, 7 mph when traveling down a hill, and 5 mph when traveling along a flat portion.

A. $16.000D$

B. $140.000D$

C. $0.593D$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

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18. For the information below, construct a linear model that describes the total time T spent on the path in terms of the distance of a particular part of the path *if we know that the time spent on each path was equal.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 4 mph, 9 mph when traveling down a hill, and 5 mph when traveling along a flat portion.

A. $18.000D$

B. $180.000D$

C. $0.561D$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

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19. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the high-quality coffee beans h.

Veronica needs to prepare 70 of blended coffee beans selling for $4.19 per pound. She has a high-quality bean that sells for $5.46 a pound and a low-quality bean that sells for $3.09 a pound.

A. $C(h) = 4.28h$

B. $C(h) = -2.37h + 382.20$

C. $C(h) = 2.37h + 216.30$

D. $C(h) = 5.46h$

E. None of the above.

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20. For the information provided below, construct a linear model that describes her total budget, B, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $800 educational expense each year. Before college, Aubrey saved up $8000. She knows she will need to pay $900 in rent a month, $70 for food a week, and $40 in other weekly expenses.

A. $B(x) = 8800 - 1340x$

B. $B(x) = 800x + 8000$

C. $B(x) = 8000x + 800$

D. $B(x) = 8800 - 1010x$

E. None of the above.

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21. What is the **best** way to describe the domain of the scenario below?

Bridges on highways often have expansion joints, which are small gaps in the roadway between one bridge section and the next. The gaps are put there so the bridge will have room to expand when the weather gets hot. Assume the gap width varies constantly with the temperature. Suppose a bridge has a gap of 1.3 cm when the temperature is 22 degrees C and that the gap narrows to 0.9 cm when the temperature warms to 30 degrees C.

A. Subset of the Integers

B. Proper subset of the Real numbers

C. Subset of the Rational numbers

D. There is no restricted domain in this scenario

E. Subset of the Natural numbers

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22. A town has an initial population of 80000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	80027	80057	80095	80125	80147	80177	80215	80245	80267

A. Non-Linear Power

B. Logarithmic

C. Exponential

D. Linear

E. None of the above

---

23. For the information provided below, construct a linear model that describes her total income, I, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $600 educational expense each year. Before college, Aubrey saved up $9000. She knows she will need to pay $1100 in rent a month, $50 for food a week, and $32 in other weekly expenses.

A. $I(x) = 9600x$

B. $I(x) = 9000x + 600$

C. $I(x) = 600x + 9000$

D. $I(x) = 9600$

E. None of the above.

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24. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the low-quality coffee beans h.

Veronica needs to prepare 150 of blended coffee beans selling for $4.76 per pound. She has a high-quality bean that sells for $5.29 a pound and a low-quality bean that sells for $2.96 a pound.

A. $C(h) = 2.96h$

B. $C(h) = 4.12h$

C. $C(h) = -2.33h + 793.50$

D. $C(h) = 2.33h + 444.00$

E. None of the above.

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25. What is the **best** way to describe the domain of the scenario below?

Veronica needs to prepare 170 lbs of blended coffee beans to sell for $4.71 per pound. She has a high-quality bean that sells for $6.00 a pound and a low-quality been that sells for $3.25 a pound.

A. Subset of the Rational numbers

B. Proper subset of the Real numbers

C. Subset of the Natural numbers

D. Subset of the Integers

E. There is no restricted domain in this scenario

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26. A town has an initial population of 50000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	49950	49900	49850	49800	49750	49700	49650	49600	49550

A. Exponential

B. Logarithmic

C. Linear

D. Non-Linear Power

E. None of the above

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27. For the information below, construct a linear model that describes the total time T spent on the path in terms of the distance of a particular part of the path *if we know that the time spent on each path was equal.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 5 mph, 11 mph when traveling down a hill, and 7 mph when traveling along a flat portion.

A. $0.434D$

B. $23.000D$

C. $385.000D$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

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28. For the information below, construct a linear model that describes the total time T spent on the path in terms of the distance of a particular part of the path *if we know that the time spent on each path was equal.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 4 mph, 9 mph when traveling down a hill, and 7 mph when traveling along a flat portion.

A. $252.000D$

B. $0.504D$

C. $20.000D$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

29. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the high-quality coffee beans h.

Veronica needs to prepare 250 of blended coffee beans selling for $5.05 per pound. She has a high-quality bean that sells for $5.60 a pound and a low-quality bean that sells for $3.58 a pound.

A. $C(h) = 2.02h + 895.00$

B. $C(h) = 4.59h$

C. $C(h) = -2.02h + 1400.00$

D. $C(h) = 5.60h$

E. None of the above.

30. For the information provided below, construct a linear model that describes her total costs, C, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $400 educational expense each year. Before college, Aubrey saved up $8000. She knows she will need to pay $700 in rent a month, $40 for food a week, and $56 in other weekly expenses.

A. $C(x) = 8400x$

B. $C(x) = 8400$

C. $C(x) = 796$

D. $C(x) = 796x$

E. None of the above.